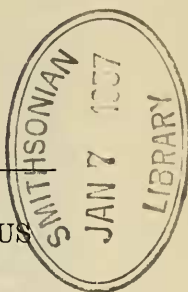


PROCEEDINGS
OF THE
BIOLOGICAL SOCIETY OF WASHINGTON



A NEW SPECIES OF FREE-TAILED BAT (GENUS
MORMOPTERUS) FROM PERU.

BY CHARLES O. HANDLEY, JR.

United States National Museum

The specimens collected by Edmund Heller on the Yale-National Geographic Society Peruvian Expedition in 1915 were reported by Oldfield Thomas (Smithsonian Misc. Coll., 68(4):1-3, 1917 & Proc. U. S. Nat. Mus., 58(2333):217-249, 1920). Because of wartime hazards to trans-Atlantic shipping, Heller's collection was divided so that only a supposedly representative series was sent to Thomas, while the remainder was kept in Washington. Among the specimens not seen by Thomas are two small molossid bats apparently unlike any known species. With allusion to their type locality, the "Lost City" of Machu Picchu, they are here named:

Mormopterus phrudus sp. nov.

Holotype.—U. S. N. M. no. 194449; adult male, skin and skull (digital epiphyses ossified and teeth considerably worn; a portion of the parietal-temporal-pterygoid region and mandible damaged on one side); collected 26 June 1915, by Edmund Heller; San Miguel Bridge, Urubamba River, Machu Picchu, Cuzco, Peru, alt. 6000 feet; collector's number 361.

Distribution.—Known only from the type locality.

Description.—Tooth formula, $1/2 - 1/1 - 2/2 - 3/3 = 30$. Upper incisors weak, strap-like spikes with slight trace of cingulum and no secondary cusp, converging to within 0.4 mm. of each other at tips; P^1 a spicule, 0.1 mm. in diameter and 0.3 mm. high, wedged between canine and P^4 , external to toothrow (only the alveoli of P^1 are preserved in the type, the teeth evidently having been lost in cleaning; in the paratype the tooth is present in one maxilla, but there is no trace even of the alveolus in the other); other teeth much as in *Tadarida brasiliensis*. Facial profile of skull evenly convex; anterior narial opening large, its margins cut down so that in side view it merges evenly with facial profile of skull; rostrum considerably broader than interorbital constriction, and shortened so that anterior opening of infraorbital canal is only about 0.5 mm. from orbit; posterior opening of infraorbital canal situated relatively far (1.5 mm.) back of lachrymal ridge; lachrymal and supra-orbital ridges slightly developed; sagittal and lambdoidal crests low but

distinct; intermaxillary notch about as large as base of canine; palate arched laterally and slightly domed anteroposteriorly; basisphenoid pits scarcely indicated; angular process narrowed at base, rendering posterior border of mandible, between angular and articular processes, concave; mandibular toothrow crowded; other cranial features as in *Tadarida brasiliensis*.

Lips apparently slightly wrinkled; spoon-hairs numerous on upper lip and side of muzzle; tragus small, narrowed to point at tip; antitragus scarcely indicated; auricles small, thin, rounded at tip, probably not reaching end of snout when laid forward, apparently separated by space of more than 1 mm. on forehead, and apparently lacking horny excrescences on anterior border; gular gland present. Size small; tibia, forearm, and fingers short; other details of muzzle, wings, feet, tail, and membranes as in *Tadarida brasiliensis*.

Mass effect of dorsum somewhat darker than Vandyke Brown, individual hairs becoming whitish toward base; throat whitish; remainder of underparts Bister; auricles and membranes blackish-brown (capitalized color terms from Ridgway, *Color standards and color nomenclature*, 1912).

Measurements.—Collector's measurements (in mm.) of type and paratype (in parentheses): Head and body 50 (51), tail vertebrae 29 (32), hind foot 8 (8), ear from notch 13 (14). For other external and cranial measurements, see tables I and II.

Comparisons.—Peruvian specimens of *Tadarida brasiliensis* I. Geoffroy Saint-Hilaire (and "*Mormopterus peruanus*" J. A. Allen—see de la Torre, *Proc. Biol. Soc. Washington*, vol. 69, 1956, p. 187) resemble *M. phrudus* in coloration and many other details, but differ from it in the following respects: Three incisors in mandible; P^1 more robust; facial profile of skull concave; anterior narial opening smaller, its margins produced in such a way that in side view it appears to be sharply depressed from facial profile of skull; rostrum longer—anterior opening of infraorbital canal about 1.0 mm. from orbit; posterior opening of infraorbital canal situated relatively short distance (1.0 mm.) back of lachrymal ridge; palate arched, but not domed; basisphenoid pits distinct; angular process broad at base, rendering posterior border of mandible, between angular and articular processes, almost straight; lips thick and wrinkled; spoon-hairs numerous on chin as well as on lips and muzzle; tragus obtuse; antitragus well defined; auricles thick and large, arising from same point on forehead, provided with numerous horny excrescences on anterior borders, and not rounded or pointed at tips; all external dimensions considerably larger and all cranial measurements averaging larger; white throat patch lacking.

The only other species requiring comparison here is *Mormopterus kalinowskii* Thomas. It closely resembles *M. phrudus* in the appearance of the auricle and its appendages and in other important details, but differs from *phrudus* as follows: P^1 absent; entire dorsal profile of skull flat, because of shallow braincase; anterior narial opening smaller, its margins produced in such a way that in side view it appears to be sharply depressed from the facial profile of the skull; palate domed; basisphenoid pits absent; spoon-hairs few, restricted to side of muzzle; external dimensions average larger, but cranial measurements smaller; coloration

tion of fur and membranes very much paler—dorsum “pale fawn-grey,” wing membranes edged posteriorly with white.

Remarks.—Association of the generic name *Mormopterus* with Neotropical species is questionable. The teeth P^1 and I_1 , used by various authors to differentiate *Mormopterus*, are evanescent in the group that includes *Chaerephon*, *Mops*, *Mormopterus*, *Otomops*, *Platymops*, and *Tadarida* and are thus of limited taxonomic value. Apparently the most substantial characters that can be claimed as unique among the species assigned to *Mormopterus* are the size and shape of the auricle. Otherwise they are very much like *Tadarida*. In many respects *M. phrudus* appears to connect the *brasiliensis* section of *Tadarida* with the Neotropical species assigned to *Mormopterus*. However, it is certainly more like the latter.

Speculation on the relationships of the many proposed genera of Molossidae will likely remain relatively fruitless until the whole family is revised. To the present time none of the component “genera” even have been adequately monographed (Sanborn’s review of *Eumops*, Jour. Mamm., 13:347, 1932, is outdated by new material).

I am grateful to John L. Paradiso for pointing out to me the specimens here described, and to Luis de la Torre for notes on “*Mormopterus peruanus*” J. A. Allen.

Specimens examined.—Two, from the type locality.

TABLE I
Measurements of wing, in millimeters, of *Mormopterus phrudus* and related Neotropical species.

	Forearm	III metacarpal	III 1st phalanx	III 2nd phalanx	IV metacarpal	IV 1st phalanx	IV 2nd phalanx	V metacarpal	V 1st phalanx	V 2nd phalanx
<i>Tadarida brasiliensis</i>										
USNM 194440 ♂ Machu Picchu, Peru -----	43.5	43.0	15.7	13.4	40.4	13.0	7.2	25.7	12.9	3.9
USNM 194441 ♂ Machu Picchu, Peru -----	43.3	43.7	16.2	14.6	41.9	13.0	6.7	26.0	12.7	3.7
<i>Mormopterus kalinowskii</i>										
USNM 283175—Trujillo, Peru -----	39.1	38.5	13.6	12.0	37.5	11.5	5.7	24.1	9.9	4.3
USNM 283176—Trujillo, Peru -----	36.9	36.3	12.8	11.4	35.0	11.1	5.4	22.7	9.7	3.8
USNM 103928 ♂ Chosica, Peru -----	34.3	34.9	12.3	10.6	34.2	10.7	5.4	22.6	9.6	3.6
<i>Mormopterus phrudus</i>										
USNM 194449 ♂ Machu Picchu, Peru -----	34.8	34.8	11.2	10.0	33.6	9.5	4.0	21.4	8.2	3.4
USNM 194450 ♂ Machu Picchu, Peru -----	33.8	34.6	11.8	11.1	33.4	10.1	4.8	21.8	8.7	3.6
<i>Mormopterus minutus</i> (Sanborn, Jour. Mamm., 1953:383) CNHM ♂ Omaja, Cuba -----	31.0	31.5	12.5	11.0	30.5	10.2	6.6	20.9	8.8	3.5

TABLE II
Measurements of skull, in millimeters, of *Mormopterus phrudus* and related Neotropical species.

	Greatest length (excluding incisors)	Zygomatic breadth	Interorbital breadth	Braincase breadth (1)	Braincase depth (excluding aud. bull.)	Maxillary tooth row (canine to M ³)	Postpalatal length (2)	Palatal breadth (3)	Mandible (4)	Mandibular tooth row (canine to M ³)
<i>Tadarida brasiliensis</i>										
USNM 194440 ♂ Machu Picchu, Peru	16.7	10.0	4.0	8.3	5.6	6.5	7.0	6.9	11.8	6.9
USNM 194441 ♂ Machu Picchu, Peru	17.3	10.1	4.0	8.6	5.9	6.2	7.1	6.9	---	---
<i>Mormopterus kalinowskii</i>										
USNM 283175—Trujillo, Peru	15.4	---	3.5	7.6	5.1	5.5	6.4	6.4	10.6	5.8
USNM 283176—Trujillo, Peru	15.3	8.7	3.4	7.7	5.0	5.3	6.3	6.1	10.1	5.7
USNM 103928 ♂ Chosica, Peru	14.6	---	3.3	7.3	5.2	5.2	6.3	---	10.3	5.7
<i>Mormopterus phrudus</i>										
USNM 194449 ♂ Machu Picchu, Peru	16.2	---	3.7	7.9	5.6	5.9	6.5	6.7	11.1	6.4
USNM 194450 ♂ Machu Picchu, Peru	---	---	---	---	5.5	5.7	---	6.5	10.9	6.1
<i>Mormopterus minutus</i>										
(Sanborn, Jour. Mamm., 1953:383)										
CNHM ♂ Omaja, Cuba	13.8	---	3.3	6.7	---	5.0	---	5.6	---	---

(1) measured between lateralmost limits of parietals.

(2) anterior limit of mesopterygoid fossa to ventral lip of foramen magnum.

(3) between lateral borders of M³ alveoli.

(4) articular process to anterior extremity, excluding incisors.